Attorney Docket No.: 3123-001 PATENT APPLICATION

IN THE

UNITED STATES
PATENT AND TRADEMARK OFFICE

In Re U.S. Patent Application		)
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Applicant:	GEE, Robert	)
		)
Serial No.:	10/632,454	)
		)
Filed:	July 31, 2003	)
		)
For:	METHOD AND SYSTEM TO PREVENT FIRING LIVE ROUNDS OF AMMUNITION DURING MILES EXERCISES	)
		)
Examiner:	James S. Bergin	)
Art Unit:	3641	)

SUPPLEMENTAL DECLARATION OF ROBERT GEE

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ROBERT GEE, hereby states under penalty of perjury, to the best of his knowledge, information and belief, as follows:

1. This declaration supplements my prior declaration of November 1, 2004, which was previously submitted. My background and experience is set forth therein.

2. I have reviewed Canadian Patent Application No. 2,189,904 to Dionne et al. (the "Dionne application") that was cited by the Patent and Trademark Office in connection with the prosecution of U.S. patent application Ser. No. 10/632,459, for which I am the sole inventor. I have also reviewed the Office Action in which the Dionne application was cited and the reasoning for the rejections set forth therein.

3. The Dionne application is intended for use for simulation cartridges that are fired in modified firearms having a reduced bore diameter and that are generally designed to only accept the simulation cartridges rounds. Those types of simulation cartridges are commercially available through companies like Simunitions Inc.

4. Neither simulation rounds nor the modified guns are used in Multiple Integrated Laser Engagement (MILES) exercises. In particular, only military-specification blank ammunition is used in MILES exercises.

5. The disclosure in the Dionne application states that the elongated holes drilled into the chamber are used to vent out excess gasses so as to not allow the projectile to travel down the bore. Based on my many years of experience and testing of firearms and ammunition, the placement of these elongated holes is a major safety consideration in that it allows for serious injury to the shooter or a bystander. In particular, the location as shown and disclosed in the

Dionne application allows the gas pressures from the cartridge to blow directly into the hand of the shooter, whether in a handgun or a rifle.

6. Injury due to the venting of pressure was one of the concerns I had in designing the system disclosed and claimed in the present application. In particular, the preferred design of my invention allows for the redirection of the vented gas/pressure by drilling the holes at an angle to the center line of the barrel bore, such that they are aligned with the shoulder of the cartridge, thus venting the gas forward of the shooter or bystanders and diverting the pressure away from the hand of the operator. By increasing the number of holes from drilled into the barrel to the plurality of holes drilled angularly in the barrel and aligned with the cartridge shoulder, the area of gas dispersion is greatly increased and the gas is diverted forward and around the barrel, rather than blowing it all in one direction. This dispersion virtually eliminates the damaging effects of the pressure to the weapon or shooter.

7. Based on testing that I performed and my experience in the physics involved in firing weapons, I do not believe that the disclosed embodiment of the Dionne application would be operable as disclosed in connection with rifle or machine gun cartridges. Brass, as is used in cartridge cases, has a set pierce strength based on the wall thickness of the case, the length of the case and the type of gunpowder used to propel the projectile. In a 5.56 military style cartridge, this pierce strength is approximately 1000 pounds of pressure per one thousandths of case thickness over an area of approximately .030 of an inch. Wall thickness on military cases is approximately 0.18" to 0.20". Therefore, the size of the pressure relief port is in direct relationship to this ratio. A hole of the size disclosed in the Dionne application, namely 5/32 inches wide and .02 to .03 inches less than the overall cartridge length would require pressures of

approximately 2.5 times the pressure generated in a standard live military round to pierce the brass case. Simply put, a hole of the size claimed in the Dionne application will only allow bulging of the cartridge case, not separation and venting. In other words, it takes more pressure to pierce a larger diameter hole.

8. In my initial testing of the design that is set forth in my current patent application, single holes of .156, .187 and .219 and .250 inch diameter were drilled through the cartridge case body, similar to what is set forth in the Dionne application and repeatedly only bulged the case because there simply was not enough pressure generated to blow a single hole of this diameter. A bulged case will allow pressures to drive the bullet forward because pressure is not diverted anywhere. In a reduced diameter barrel, as explained below, forward movement is virtually impossible. Therefore, as pressure takes the path of least resistance, which in the case of weapons is the chamber wall, locking lugs, bolt body or frame, application of the teachings of the Dionne application would be very dangerous. Accordingly, in operation, by placing the elongated slot in the position set forth in the disclosure, as much as 50,000 pounds of pressure per square inch is delivered directly into the hand of the shooter or to eye level of anyone standing in the immediate vicinity of the shooter.

9. As set forth above, based on my experience and simply physics, I do not believe that a standard live cartridge will be able to be forced through a reduced-bore diameter barrel should a live cartridge accidentally be loaded into the simulation guns. For example, a standard 9mm bore diameter is .356 inches in diameter. The projectile coming out of a live cartridge is .357 inches in diameter. This .001 inch difference in diameter is enough to allow gas pressure build up in the bore to drive the cartridge down range with velocities over 1500 feet per second.

The bore diameter in a Simunitions-type reduced diameter barrel is .300 inches. It would be impossible to develop enough pressure to move a .357 inch diameter projectile anywhere down the bore. All pressure from the expanding gasses from the fired round would blow back into the action causing catastrophic damage to the gun and shooter. In the case of the 5.56mm barrels, a standard bore diameter in a live weapon is .224 inches and the projectile diameter is .223 inches. In a Simunitions-type reduced bore barrel, the bore diameter is only .200 inches. Again, it is virtually impossible for a live projectile to travel down the bore.

FURTHER AFFIANT SAYETH NOT

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made under the penalty of perjury.

Dated: 11/14, 2005

ROBERT GEE

STATE OF Indiana)
) SS.
COUNTY OF Porter)

Subscribed and sworn to before me on November 14, 2005, by ROBERT GEE.

(SEAL)

Christine M. Coates

2/25/2011 exp
Notary Public